

## **Aquaculture and Fisheries**

Attending a marine science based high school was a unique experience that introduced me to the opportunities and challenges that aquaculture creates. Aquaculture, or aquatic agriculture, is the farming of fish and other organisms for purposes such as research, ornamental aquariums, and restocking wild populations. One purpose stood out to me though and has helped shape my educational and career goals - aquaculture for food production. Having grown up with frequent visits to UConn's barns, I learned early that where your food comes from is important. Living near the shore, I also developed a keen awareness of the oceans and was introduced to fishing. Aquaculture is a natural crossover between these two areas of interest. As our planet's population grows, food security will be an increasingly large issue. At the same time, environmental sustainability is more important than ever as we reach a critical point in terms of a changing planet. Resources are being exploited at a faster rate than they can be replenished. This includes wild fish stocks, which people depend on for subsistence in many parts of the world and are economically important in many other areas. Farmed fish are a viable alternative but only if grown economically and in a way that minimizes environmental impact. It is also crucial to combat the common belief that farmed fish are less healthy for human consumption than their wild caught counterparts. Educating the public is the first step, but I believe some of the current procedures for rearing fish need to be addressed and changed as well, such as the rampant and often unnecessary use of antibiotics and medications in fish feed.

My proposed major, titled Aquaculture and Fisheries, is based off my passion for all things fish related, from sustainable fisheries to farm management. After a set of core courses including chemistry, biology, physics, and statistics, I plan to combine courses primarily from the following three departments: Natural Resources and the Environment, Agriculture and Resource Economics, and Ecology and Evolutionary Biology. A careful selection of courses will allow me to gain a broader

understanding of the issues related to aquaculture. NRE courses like Introduction to Fisheries and Wildlife, Global Sustainable Natural Resources, and Fisheries Management will give me a background on fisheries as a natural resource. These will help in understanding the benefits of aquaculture from an environmental standpoint as I learn about threats to wild populations. ARE courses will offer a different perspective on aquaculture by looking at it as an economic opportunity. I will gain an understanding of agribusiness, a category that large scale aquaculture falls into, through courses including Business Management and Essentials of Accounting and Business. This theme is important because of my interest in owning my own business one day. Understanding how markets work and how to make informed business decisions is crucial to success. EEB courses like Marine Biology, Biology of Fishes, and Introduction to Animal Parasitology will benefit me by increasing my knowledge of fish and other aquacultured species, their life cycles, and disease threats to them. This is the base knowledge necessary to raise aquatic animals. There are two additional courses I think will be important as well. The first is Animal Food Products in the Animal Science department which will touch on the food production and processing aspect of farming fish. The second is Health and Disease Management of Animals in the Pathobiology and Veterinary Sciences department. These both directly relate to working in the aquaculture industry where you have a large number of animals in captivity being raised for human consumption.

Because a broad range of experiences in the subject area is an important part of an interdisciplinary program, I plan to study abroad during my time at UConn, complete a related internship, and complete a minor to supplement my studies. I am currently planning to study in Australia, during my junior year, depending on course offerings at UConn and at my international school of choice. My top choice is at the University of Wollongong because of their aquaculture courses. This is an opportunity to be introduced to another culture and aquaculture in that society. By selecting a university with dedicated aquaculture course work I will be able to enrich my course load in ways

otherwise not possible with the current offerings at UConn. Additionally, I plan to complete at least one summer internship following my sophomore or junior years to gain experience in the aquaculture industry or a related field. Beginning the first semester of my freshman year, I have worked in an on-campus lab which is conducting research on a squid species. While this type of research is not directly related to my future goals, I continue to gain valuable experience since the core concepts of system maintenance, water quality, and responsible animal husbandry are all transferable to other organisms. My major will be supplemented by the minor offered by the ARE department titled Agribusiness Management. This minor overlaps with some courses in my major and will allow me to focus on additional concepts regarding running a business producing food products.

Combining courses focused on resource economics and agribusiness with natural resource and biology courses will allow me to individualize my undergraduate education to come away with the best possible understanding of the issues surrounding aquaculture. While not an explicit goal now, I have not ruled out the possibility of a graduate program focused on aquaculture such as the Masters of Aquaculture offered by Auburn University, or the comparable degree offered by the University of Miami. My ultimate post-graduation goal is to own and manage my own sustainable aquaculture company where I can produce a healthy, cost-effective, and environmentally conscious alternative to wild caught seafood. While creating many opportunities, the concept of sustainable aquaculture also creates immense challenges. An Aquaculture and Fisheries individualized major will prepare me to be a passionate and contributing member of this growing sector and an advocate for the preservation of marine resources.